

REMARKS

In reply to the Office Action of February 21, 2007, Applicants amended claims 1, 2, 4, 18 and 33. Accordingly, claims 1-23 and 33-39 are presented for examination.

The Examiner rejected claims 1-23 and 33-39 under 35 U.S.C. § 112, ¶ 2 as being indefinite. Applicants amended claims to obviate this rejection. Thus, Applicants request reconsideration and withdrawal of this rejection.

The Examiner rejected claims 1, 2, 5, 6, 10, 13, 18, 19, 33, 35, 37, and 39 under 35 U.S.C. § 102(a) as being anticipated by Inoue et al., WO 03/034519 using U.S. 2004/0241078 as an English equivalent ("Inoue"). But, Inoue does not explicitly disclose the subject matter covered by these claims. Instead, Inoue discloses electrolytic treatment of a carbon fiber woven fabric suitable for use as a fuel cell diffusion layer in a solution of 0.1 N sulfuric acid to make the carbon fabric hydrophilic. (Inoue, par. 0092.) It appears that the Examiner's view is that this treatment would result in a sulfonic acid moiety covalently bonded to the carbon fiber woven fabric. But, rather than disclosing this, Inoue discloses that his method of achieving anodic oxidation method via electrolytic treatment results in a preferred ratio of oxygen atoms to the number of carbon atoms on the surface of his carbon fibers. (See, e.g., id., par. 0046-par. 0049.) Nor does Inoue inherently disclose the subject matter covered by these claims. To establish inherent disclosure, one must show that the subject matter is "necessarily present [in the prior art reference] and that it would be so recognized by persons of ordinary skill." (Electro Sys. S.A. v. Cooper Life Sciences, 34 F.3d 1048, 1052 (Fed. Cir. 1994), emphasis provided). Here, the Examiner has not satisfied this burden. For example, as would be recognized by a person of ordinary skill in the art, Inoue's use of 0.1 N sulfuric acid in the electrolytic treatment is more likely for the purpose of increasing the electrolytic current and does not necessarily result in formation of a sulfonic acid moiety covalently bonded to the carbon fiber. Thus, one skilled in the art would not have recognized that the electrolytic treatment resulted in a sulfonic acid moiety covalently bonded to the carbon fiber. In view of the foregoing, Applicants request reconsideration and withdrawal of this rejection.

The Examiner rejected claims 1, 2, 5, 6, 33, 35, and 39 under 35 U.S.C. § 102(b) as being anticipated by Miller, U.S. 3,637,424 ("Miller"). But, Miller does not disclose the subject matter covered by these claims. Rather, Miller discloses a carbon cloth that is treated with a disulfonic acid and the disulfonic acid bonds to the carbon cloth through an aryl moiety. (See, e.g., Miller col. 2, lines 40-70.) Thus, Applicants request reconsideration and withdrawal of this rejection.

The Examiner rejected claims 1, 2, 5, 6, 33-35, 38, and 39 under 35 U.S.C. § 102(b) as being anticipated by Mussell et al., U.S. 5,882,810 ("Mussell"). But, Mussell does not disclose the subject matter covered by these claims. Instead, Mussell discloses increasing wettability of a carbon paper as a cathode flow field in a fuel cell by oxidation in a medium comprising silver sulfate, sodium persulfate and sulfuric acid at 60 °C, and Mussell focuses on teaching a membrane electrode assembly having an ion exchange membrane, and at least two active layers positioned on the same side of the membrane instead of a diffusion layer. (Mussell, Abstract, col. 8, lines 23-29 and claim 1.) Further, the Examiner has provided no meaningful reason to believe that Mussell's process would necessarily result in the subject matter covered by claims 1, 2, 5, 6, 33-35, 38, and 39. Thus Applicants request reconsideration and withdrawal of this rejection.

The Examiner rejected claims 3, 4, 11, and 12 under 35 U.S.C. § 103(a) as being unpatentable over Inoue in view of Barton et al., U.S. 2003/0157397 ("Barton"). Claims 3, 4, 11, and 12 require a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. As explained above, Inoue does not disclose this subject matter. Nor is there any suggestion to modify Inoue to provide such subject matter. Barton does not cure Inoue's deficiencies, at least because, like Inoue, Barton does not disclose or suggest a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. Thus, neither Inoue nor Barton, alone or in combination, discloses or suggests the subject matter covered by claims 3, 4, 11, and 12, and there is no suggestion to combine these references to provide such subject matter. Even if the references were combined, the result would not be the subject matter covered by claims 3, 4, 11, and 12. Applicants therefore request reconsideration and withdrawal of this rejection.

The Examiner rejected claims 7-9 under 35 U.S.C. § 103(a) as being unpatentable over Inoue in view of Denton et al., EP0791974 ("Denton"). Claims 7-9 require a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. As explained above, Inoue does not disclose or suggest a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. Denton does not cure Inoue's deficiencies, at least because, like Inoue, Denton does not disclose or suggest a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. Thus, neither Inoue nor Denton, alone or in combination, discloses or suggests the subject matter covered by claims 7-9, and there is no suggestion to combine these references to provide such subject matter. Even if the references were combined, the result would not be the subject matter covered by claims 7-9. Applicants therefore request reconsideration and withdrawal of this rejection.

The Examiner rejected claims 14-17 under 35 U.S.C. § 103(a) as being unpatentable over Inoue. Claims 14-17 require a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. As explained above, Inoue does not disclose a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. Nor is there any suggestion to modify Inoue to provide such subject matter. Accordingly, Applicants request reconsideration and withdrawal of this rejection.


The Examiner rejected claims 20-23 under 35 U.S.C. § 103(a) as being unpatentable over Inoue in view of Reddy et al., U.S. 5,132,193 ("Reddy"). Claims 20-23 require a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. As explained above, Inoue does not disclose a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. Reddy does not cure Inoue's deficiencies, at least because, like Inoue, Reddy does not disclose or suggest a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. Thus, neither Inoue nor Reddy, alone or in combination, discloses or suggests the subject matter covered by claims 20-23, and there is no suggestion to combine these references to provide such subject matter. Even if the references were combined, the result would not be the subject matter covered by claims 20-23. Applicants therefore request reconsideration and withdrawal of this rejection.

The Examiner rejected claims 34, 36, and 38 under 35 U.S.C. § 103(a) as being unpatentable over Inoue in view of Tabata et al., U.S. 2002/0071980 ("Tabata"). Claims 34, 36, and 38 require a fuel cell diffusion layer and an acid moiety (e.g., a sulfonic acid moiety) covalently bonded to the diffusion layer. As explained above, Inoue does not disclose a fuel cell diffusion layer and an acid moiety covalently bonded to the diffusion layer. Tabata does not cure Inoue's deficiencies, at least because, like Inoue, Tabata does not disclose or suggest a fuel cell diffusion layer and a sulfonic acid moiety covalently bonded to the diffusion layer. Thus, neither Inoue nor Tabata, alone or in combination, discloses or suggests the subject matter covered by claims 34, 36, and 38, and there is no suggestion to combine these references to provide such subject matter. Even if the references were combined, the result would not be the subject matter covered by claims 34, 36, and 38. Applicants therefore request reconsideration and withdrawal of this rejection.

Applicants believe that the application is currently in condition for allowance, which action is requested. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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